

The First Randomized, Controlled Clinical Trial of Mask Use in Households to Prevent Respiratory Virus Transmission

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Background: Observational epidemiologic data suggest that transmission of viral respiratory infection was significantly reduced during the SARS epidemic with the use of face masks as well as other infection control measures. However, there are no prospective randomised control trials on face masks in prevention of viral respiratory infections. **Aims:** To determine the efficacy of surgical masks and P2 masks in households on the interruption of transmission of respiratory viruses.

Methods: Prospective cluster randomized trial comparing surgical masks, non-fit-tested P2 (respirator) masks with no masks in interruption of viral transmission between household members. Families of children presenting to emergency department with influenza like illness (ILI) were randomised to one of the three groups and followed up for development of respiratory illness in other family members. Nasopharyngeal swabs of index patients and contacts that developed ILI were tested with a multiplex respiratory viral PCR for influenza A and B, parainfluenza, RSV, picornavirus, enterovirus, rhinovirus, adenovirus, coronaviruses human metapneumovirus.

Results: We recruited 286 adults with exposure to respiratory infections in the Australian winters of 2006 and 2007 - 94 adults were randomized to surgical masks, 90 to P2 masks and 102 to the control group. Using intention to treat analysis, we found no significant difference in the relative risk of respiratory illness in the mask groups compared to control group. However, compliance with mask use was less than 50%. In an adjusted analysis of compliant subjects, masks as a group had protective efficacy in excess of 80% against clinical influenza-like illness. The efficacy against proven viral infection and between P2 masks (57%) and surgical masks (33%) was non-significant.

Conclusions: This is the first RCT on mask use to be conducted and provides data to inform pandemic planning. We found compliance to be low, but compliance is affected by perception of risk. In a pandemic, we would expect compliance to improve. In compliant users, masks were highly efficacious. A larger study is required to enumerate the difference in efficacy (if any) between surgical and non-fit tested P2 masks.

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Clinical Complications of Chikungunya Infections

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Introduction: Since February/March 2005, Chikungunya has been an emerging infection in the Indian Ocean. We report an observational study to describe the complications post-Chikungunya in a sample of affected people in Mauritius.

Methods: Ethical clearance was obtained for this study. Data collection was carried out in February and March 2007 on a random sample of people who had suffered from Chikungunya in 2005 and 2006. Data was collected by means of a comprehensive questionnaire.

Results: Participants comprised 77 people of whom 41 were males and 36 were females. Participants ranged from 6 to 69 years. It was found that 70 of the participants experienced persisting joint pains for at least 6 months following the acute phase. 35 of these participants had residual joint complaints after 6 months. 44 of all participants suffered from psychological sequelae out of which 37 complained of pessimism, 35 of lack of concentration, 31 of insomnia, 31 of depression, 22 of aggressiveness, and 17 of confusion. 10 participants had dermatological sequelae which consisted of increased pigmentation on the face or on limb extremities, 6 had iatrogenic complications due to NSAIDs induced gastritis, and 3 participants with serologically proven Chikungunya had neurological manifestations and changes on CT/MRI which could correspond to demyelination. Complications increased with age. From July 2005 till June 2006, there was a significant increase in the number of deaths which could be Chikungunya related. Statistical analysis demonstrated that there was a significant difference in the number of complications according to gender, females being more affected than males and also in those participants with comorbidity being more affected than others. Psychological sequelae were found to be dependent on co-morbidity.

Discussion and conclusion: Though this study had limitations such as a small sample size and the data relied mostly on clinical diagnosis, results yield useful information on complications of Chikungunya. This study highlights that Chikungunya which causes a significant impact on health in the acute phase can have significant sequelae months afterwards and this includes psychological sequelae. More studies need to be carried out to confirm these preliminary findings.

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Dengue virus infection in the western region of Saudi Arabia

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Background: Dengue virus (DEN-V) infection has become one of the major public health problems in many tropical